REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections and objections, and further examination are requested.

Claims 1-5 are pending in this application. Claims 1-5 stand rejected. Claims 1-5 are cancelled herein. Claims 6-13 are newly added. No new matter has been added.

The specification and abstract have been carefully reviewed and revised in order to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Also attached hereto is a marked-up version of the substitute specification and abstract illustrating the changes made to the original specification and abstract.

Claims 6-8 corresponding to original claims 1-3, and claims 9-13, have been written so as place the claims in better form. None of these amendments have been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

In the Office Action, the Examiner asserts that the listing of references in the specification is not a proper Information Disclosure Statement. More specifically, the Examiners asserts that reference "WO 02/079629" as listed on page 5 of the specification, must be filed in an Information Disclosure Statement to be properly considered. Applicants have filed with this amendment an Information Disclosure Statement including the reference "WO 02/079629".

The Examiner has objected to the specification. More specifically, the Examiner asserts that the first paragraph of page 15 discusses a construction of "the electric power generation plant", whereas elsewhere in the specification an "electric power generation system" is disclosed. Applicants have provided a substitute specification that amends the first paragraph on page 15 by amending "the electric power generation" to "the electric power generation system". Accordingly, the Applicants submit that the specification, as amended, satisfies the Examiner's concerns.

For at least the reasons set forth above, the Applicants respectfully request that the objection to the specification be withdrawn.

Claim 3 has been objected to under 37 C.F.R. § 1.75(c). More specifically, the Examiner asserts that the claim 3 is in improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have cancelled originally filed claims 1-3 and have added corresponding new claims 6-8. Accordingly, the Applicants submit that the claims, as amended, satisfy 37 C.F.R. § 1.75(c).

For the reasons set forth above, the Applicants respectfully request that the objection to claim 3 be withdrawn.

Claims 4 and 5 have been rejected under 35 U.S.C. §112, first paragraph. More specifically, the Examiner asserts that claims 4 and 5 fail to comply with the written description requirement because they contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants have cancelled originally file claims 4 and 5 and have added new claims 6-13. Accordingly, the Applicants submit that new claims 6-13 satisfy 35 U.S.C. §112, first paragraph.

For the reasons set forth above, Applicants respectfully request the 35 U.S.C. §112, first paragraph, rejection of claims 4 and 5 be withdrawn.

Claims 1-3 have been rejected under 35 USC §103(a) as being unpatentable over Wu et al (U.S. Patent No. 6,176,224) (hereinafter referred to as "Wu") in view of Yamamoto et al (U.S. Patent Application Publication No. 2003/0188714) (hereinafter referred to as "Yamamoto"). Because claims 1-3 are cancelled herein, the Applicants respectfully request that the rejection of claims 1-3 under 35 USC §103 be withdrawn.

The above-mentioned rejection is submitted to be inapplicable to newly added claims 6-13 for the following reasons.

Claim 6 recites a gas engine electric power generation system including, in part, a combustion controller that adjusts a fuel mixture including recovered methane gas having a methane concentration of 30 to 50% and ventilated methane gas having a methane concentration of 0.3 to 0.7% in a gas engine in response to a combustion condition signal from a combustion diagnosis apparatus, and a gas injection device that introduces the fuel

mixture into a cylinder while mixing the recovered methane gas in the ventilated methane gas to define a lean methane/air mixture having a methane concentration of 3-5% and having an air excess ratio not less than 2, such that the gas engine operates to produce electric power.

In contrast, Wu discloses an engine assembly 10, including an engine 12, that uses fuel from a low energy gaseous fuel source that can be collected from a manifold which extracts the low energy gaseous fuel from a coal mine prior to removing the coal. For example, the lower energy gas fuel can be collected from a manifold which extracts the low energy gas fuel from a landfill. Both of these sources produce a hydro carbon fuel which contains between 30 and 50% methane.

The engine assembly 10 further includes a pressure sensor 32 and an engine control unit 34. The pressure sensor 32 is positioned in a fuel-air mixture conduit 27 to measure the pressure caused by the flow of the fuel-air mixture passing through the fuel-air mixture conduit 27 and generates a load signal on a data line 36 in response thereto.

The combustion of the fuel-air mixture in combustion chambers produces a number of exhaust gases. An oxygen sensor 52 is positioned within an exhaust conduit 50 to measure the amount of oxygen in the exhaust gases. The oxygen sensor 52 produces an oxygen content signal that is sent to the engine control unit 34.

The engine control unit 34 is operable to receive four input signals. Upon receiving one of these input signals, a CPU 40 of the engine control unit 34 generates a fuel valve adjustment signal or a throttle position signal. The fuel valve adjustment signal controls the composition, or air-fuel ratio, of the fuel-air mixture that is combusted in the combustion chambers of engine 12. The throttle position signals provide control of the amount of the fuel-air mixture that is combusted in the combustion chambers of engine 12.

It has been determined that controlling the composition of the fuel air mixture being combusted in the combustion chamber enables the engine 12 to maintain the low idol speed while minimizing the oscillation. Therefore, the CPU 40 monitors a data line 54 for the oxygen content signal which corresponds to the amount of oxygen in the exhaust gases advanced through the exhaust conduit 50.

In order to more accurately control the NO_x emission of engine 12 the temperature signal is used to adjust the target oxygen curve. If the temperature in the fuel air conduit 27 is less than the baseline temperature, then the air fuel ration of the fuel air mixture must be reduced.

Based on the above discussion, it is apparent that the engine assembly 10 of Wu uses hydrocarbon fuel which contains between 30 and 50% methane, and data from oxygen sensor 32 and temperature sensor 33 in order to control the composition of the fuel air mixture being combusted in combustion chambers of engine 12. Moreover, there is no disclosure or suggestion in Wu to modify the engine assembly 10 to include a combustion diagnosis apparatus for diagnosing the combustion condition within the gas engine 12 in response to a combustion condition signal, a combustion controller that adjusts a fuel mixture having 30-50% methane concentration and a ventilated methane gas having a methane concentration of 0.3-0.7%, and a gas injection device that introduces the fuel mixture into a cylinder while mixing the two gases to define a lean methane/air mixture having a methane concentration from 3-5% and having an air excess ratio not less than 2.

Yamamoto is relied upon in the rejection as disclosing a combustion diagnosis apparatus for adjusting combustion conditions at the occurrence of knock, or misfire, and flame quenching in internal combustion engines, including gas engine utilizing fuel gas. More specifically, Yamamoto is directed to an apparatus and method for diagnosing and controlling combustion in an internal combustion engine. A combustion diagnosis is done using pressure ratios and is not influenced by changes in temperature or pressure. The gas pressure in the combustion chamber of engine 45, i.e., cylinder pressure is detected with a cylinder pressure detector 1. Combustion diagnosis of detecting the occurrences of knock, misfire, excessively high maximum cylinder pressure or flame quenching is performed by a single combustion diagnosis apparatus 100. Further, highly accurate combustion diagnosis is possible by using cylinder pressure signals filtered through a simple low pass filter. Moreover, a highly accurate combustion diagnosis is possible using simple means, as the combustion diagnosis is carried out by **only** cylinder pressures detected.

However, it is clear that Yamamoto also fails to disclose or suggest the above discussed features of the gas engine electric power generating system recited in claim 6. Therefore, Yamamoto fails to address the deficiencies of Wu. As a result, claim 6, and claims 7 and 8 depending therefrom, are patentable over the combination of Wu and Yamamoto.

It is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. Specifically, Applicants respectfully submit that Yamamoto teaches away from the present invention and from Wu, and as such, support the non-obviousness of the invention. More specifically, in contrast to the present invention and to Wu, Yamamoto clearly describes controlling the combustion condition within an engine using only cylinder pressure data.

Because Yamamoto does not employ an oxygen senor and a temperature sensor in place of pressure sensor 1, it is incompatible with Wu. Modifying Wu by substituting the pressure sensor 1 of Yamamoto for the oxygen sensor 32 and temperature sensor 33 of Wu, renders the engine assembly 10 unsatisfactory for its intended purpose because this substitution/modification does not provide the proper data required by Wu for diagnosis. Because pressure sensor 1 of Yamamoto provides incompatible data to the CPU 40 of Wu, Wu cannot be changed as required by the proposed modifications and function as intended. Because the proposed modifications render Wu unsatisfactory for its intended purpose, Yamamoto is incompatible with Wu. Thus, there is no suggestion or reason to make the proposed combination of references. As a result, claim 6, and claims 7-8 depending therefrom, are patentable over the combination of Wu and Yamamoto.

Regarding claim 9, it is patentable over the references relied upon in the rejections for reasons similar to those set forth above in support of claim 6. That is, claim 9 recites a gas engine electric power generating system including, in part, means for adjusting a fuel mixture of recovered methane gas having a methane concentration of 30 to 50% and ventilated methane gas having a methane concentration of 0.3 to 0.7 % in the gas engine in response to a combustion condition signal from the means for diagnosing a combustion condition, and means for introducing a fuel mixture into a cylinder while mixing the recovered methane gas and the ventilated gas to define a lean methane/air mixture

having a methane concentration of 3 to 5% and having an excess air ratio not less than 2. These features are not disclosed or suggested by the references.

Regarding claim 12, it is patentable over the references relied upon in the rejections for reasons similar to those set forth above in support of claim 6. That is, claim 12 recites a method for reducing for reducing carbon dioxide emissions using the emissions credit trading including, in part, supplying recovered methane gas having a methane concentration of 30 to 50% and ventilated methane gas having a methane concentration of 0.3 to 0.7% from a coal mine and introducing the fuel mixture into a cylinder using a gas injection device while mixing the recovered methane gas and the ventilated methane gas to define a lean methane/air gas mixture having a methane concentration of 3 to 5% and having an excess air ratio of not less than 2. These features are not disclosed or suggested by the references.

Because of the above mention distinctions, it is believe clear that claims 6-13 are patentable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that the person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manor as to result in, or otherwise render obvious, the present invention as recited in claims 6-13. Therefore, it is submitted that claims 6-13 are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, all the claims now active in this application are believe to be in condition for allowance. Reconsideration and favorable action is also respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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